

Serial No. **10/029,261**

Docket No. **P-0312**

Amdt. dated April 21, 2006

Reply to Office Action of January 25, 2006

### **REMARKS**

By the present response, Applicant has amended claims 1 and 23 to further clarify the invention. Claims 1-13 and 15-30 remain pending in the present application. Reconsideration and withdrawal of the outstanding rejections and allowance of the present application are respectfully requested in view of the above amendments and the following remarks.

In the Office Action, claim 23 has been objected to because of informalities. Claims 1-3, 7-11, 15, 16, 26, 27, and 29 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,337,754 (Imajo) in view of U.S. Publication No. 2002/0114038 (Arnon et al.). Claim 12 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Imajo in view of Arnon et al. and further in view of U.S. Patent No. 6,122,083 (Ohta et al.). Claim 13 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Imajo in view of Arnon et al. and further in view of U.S. Patent No. 6,507,741 (Bassirat). Claims 4-6, 28 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### **Claim Objections**

Claim 23 has been objected to because of informalities. Applicant has amended this claim to further clarify the invention and respectfully request that this rejection be withdrawn.

Serial No. **10/029,261**

Docket No. **P-0312**

Amdt. dated April 21, 2006

Reply to Office Action of January 25, 2006

Allowable Subject Matter

Applicant thanks the Examiner for allowing claims 17-25 and indicating that claims 4-6, 28 and 30 would be allowable if rewritten in independent form including all of the limitation of the base claim and any intervening claims.

35 U.S.C. § 103 Rejections

Claims 1-3, 7-11, 15, 16, 26, 27 and 29 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Imajo in view of Arnon et al. Applicant respectfully traverses these rejections.

Imajo discloses an optical conversion relay amplification system where a downlink radio signal is converted to an optical signal in an electric/optical converter of a fixed central station, and transmitted via a downlink optical fiber line, divided in a downlink optical signal in an optical branching device of a fixed relay station, subjected to optical multiplexing with an uplink optical signal transmitted from a lower link fixed relay station in an optical multiplexer, and converted to an electric signal by an optical/ electric converter, a downlink signal component being contained in the electric signal is sent to a portable apparatus via an antenna, the uplink signal component is subjected to power multiplexing with an uplink signal transmitted from the portable apparatus by a power multiplexer, converted to an optical signal by an electric optical converter to transmit via an uplink fiber line, and again converted to an electric signal by a optical/electric converter of the fixed central station to send as an uplink radio signal.

Arnon et al. discloses transferring information within a cellular communication network, consisting of transmitting an optical carrier from a first network-element of the network, modulating the optical carrier with the information, and detecting the modulated optical carrier in an avalanche photo-diode (APD) in a second network element of the network so as to recover the information. This includes altering a gain of the APD responsive to a level of the optical carrier so as to prevent saturation of the APD [mover the following above]

Regarding claims 1, 10 and 26, Applicant submits that none of the cited references, taken alone or in any proper combination, disclose suggest or render obvious the limitations in the combination of each of these claims. For example, the Examiner asserts that Imajo discloses a plurality of optical repeaters coupled in series, each configured to receive and convert a corresponding different radio frequency analog signal to a first baseband digital electrical signal, summing the first baseband digital electrical signal and a second baseband digital electrical signal transmitted from a previous optical repeater in a series, and generate an optical output signal, in figure 1, 2-1A, 2-1B, etc., and 33, and col. 12, lines 15-32, col. 13, lines 45-67 and col. 14, lines 1-6. However, these portions merely disclose that a fixed relay station receives radio waves from a portable apparatus where the radio waves are amplified and sent to a multiplexer. This is not receiving radio frequency analog signals and converting the signals to a first baseband electrical signal, as recited in the claims of the present application. The power multiplexer 33 in figure 1 of Imajo merely performs a switching function. This is not converting an analog signal to a

digital signal. Further, Imajo does not disclose or suggest a first baseband digital electrical signal, as recited in the claims of the present application.

Moreover, these portions of Imajo do not disclose or suggest summing a first baseband digital electrical signal transmitted from a previous optical repeater, as recited in the claims of the present application. As noted previously, a power multiplexer 33 merely performs a switching function. This is not summing a first digital signal and a second digital signal. In addition, Imajo does not disclose or suggest generating an optical output signal from the summed first baseband digital electrical signal and second baseband digital electrical signal, as recited in the claims of the present application. Imajo merely discloses taking the output of the power multiplexer 33 which is one of the signals from amplifier 29 or amplifier 32, and converts this one signal from an electrical signal to an optical signal. This is not generating an optical output signal from a summed signal.

The Examiner admits that Imajo does not disclose or suggest an optical repeater including converting an analog baseband signal into a digital baseband signal, but asserts that Arnon et al. discloses these limitations in figure 7, and paragraphs 259-262. However, these portions merely disclose a microwave receiving unit (MRU) that includes an analog to digital converter 190 being interposed between a combiner 50 and emitter 52 that provides a parallel digital output from the combiner 50 to the emitter 52. The microwave receiving unit 41 in Arnon et al. is not an optical repeater, as recited in the claims of the present application.

Further, the analog to digital converter in Arnon et al, is not converting a RF analog signal to a first baseband digital electrical signal, as recited in the claims of the present application.

Further, Applicant submits that one of ordinary skill in the art would have no motivation to combine the teachings of Imajo that relates to optical conversion relay amplification, with Arnon et al. that is directed to communication between network elements of a cellular communication network via an optical link. One of ordinary skill in the art would have no motivation to take elements from a microwave receiving unit and combine them with elements of a fixed relay station. The disclosures of these two inventions are directed at entirely different problems and solutions. Moreover, the combination of these two references fails to achieve the limitations in the claims of the present application.

Regarding claims 2, 3, 7-9, 11, 15, 16, 27 and 29, Applicant submits that these claims are dependent on one of independent claims 1, 10 and 26 and, therefore, are patentable at least for the same reasons noted previously regarding these independent claims.

Accordingly, Applicant submit that none of the cited references, taken alone or in any proper combination, disclose suggest or render obvious the limitations in the combination of each of claims 1-3, 7-12, 15, 16, 26, 27 and 29 of the present application. Applicant respectfully requests that these rejections be withdrawn and that these claims be allowed.

Claims 12 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Imajo in view of Arnon et al. and Ohta et al. Applicant respectfully traverses this rejection.

Ohta et al. discloses a mobile communication system having a small base station and equipment for its system where the small base station provides radio communication between the small base station and mobile stations and where the small base station is connected with a central station via optical transmission lines.

Applicant submits that claim 12 is dependent on independent claim 10 and, therefore, is patentable at least for the same reasons noted previously regarding this independent claim. Applicant submits that Ohta et al. does not overcome the substantial defects noted previously regarding Imajo and Arnon et al.

Accordingly, Applicant submits that none of the cited references taken alone or in any proper combination, disclose suggest or render obvious the limitations in the combination of claim 12 of the present application. Applicant respectfully requests that this rejection be withdrawn and that this claim be allowed.

Claim 13 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Imajo in view of Arnon et al. and Bassirat. Applicant respectfully traverse this rejection and submits that this claim is dependent on independent claim 10 and, therefore, is patentable at least for the same reasons noted previously regarding this independent claim. Applicant submits that Bassirat does not overcome the substantial defects noted previously regarding Imajo and Arnaon et al.

Accordingly, Applicant submits that none of the cited references, taken alone or in any proper combination, disclose suggest or render obvious the limitations in the combination of

Serial No. **10/029,261**

Docket No. **P-0312**

Amdt. dated April 21, 2006

Reply to Office Action of January 25, 2006

claim 13 of the present application. Applicant respectfully requests that this rejection be withdrawn and that this claim be allowed.

Serial No. **10/029,261**

Docket No. **P-0312**

Amdt. dated April 21, 2006

Reply to Office Action of January 25, 2006

### **CONCLUSION**

In view of the foregoing amendments and remarks, Applicant submits that claims 1-13 and 15-30 are now in condition for allowance. Accordingly, early allowance of such claims is respectfully requested. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, Frederick D. Bailey, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,  
FLESHNER & KIM, LLP



Daniel Y.J. Kim  
Registration No. 36,186  
Frederick D. Bailey  
Registration No. 42,282

P.O. Box 221200  
Chantilly, Virginia 20153-1200  
(703) 766-3701 DYK/FDB:tlg

**Date: April 21, 2006**

\\fk4\Documents\2000\2000-253\85885.doc

**Please direct all correspondence to Customer Number 34610**